Trip Report

Title: Summary of the 3rd IAEA –MOE Experts' Meeting on Environmental Remediation of Off-Site Areas after the Fukushima Daiichi Nuclear Power Station Accident

Location: Tokyo and Fukushima, Japan
Dates: 17-21 April 2017

Trip Summary: Dr. Sang Don Lee from US EPA traveled to Japan on April 17 through 21, 2017, to attend the Experts' Meeting on Environmental Remediation after the Fukushima Daiichi Nuclear Power Station Accident. This visit was organized by the International Atomic Energy Agency (IAEA) and Ministry of Environment (MOE) Japan. The experts were from the U.S. IAEA: four international experts and three IAEA experts. The meeting agenda and the experts' names are attached at the end of the report.

Meeting purpose: To discuss the current status (progress, challenges and solutions) of environmental remediation activities taking place in off-site areas affected by the accident; to provide advice to Japan, as appropriate, for advancing the environmental remediation work; and to share relevant findings with the international community.

Meeting outcome: The IAEA experts will prepare a meeting summary by June 2017 that will document the discussions, observations and advice for future improvement of the environmental remediation in Japan. The meeting summary will be presented to the MOE. The meeting will not be open to the media and the general public. However, the meeting summary will be publicly available in a timely manner.

April 15-16, 2017

Dr. Sang Don Lee departed the US on April 15th and arrived in Tokyo on April 16th.

IAEA internal meeting on April 17, 2017

Dr. Lee and six other experts met at the MOE's conference room in Tokyo, Japan for a pre-meeting. Mr. Horst Monken-Fernandes from IAEA led the pre-meeting by introduction of the attending experts. Mr. Kuroda from MOE also attended this pre-meeting to address the logistics of the upcoming meetings and site visits. This pre-meeting confirmed the outcomes from the previous two meetings in 2016 and discussed the full meeting format, attendees, and discussion topics.

Briefly, the 3rd IAEA-MOE Experts' Meeting on Environmental Remediation of Off-Site Areas after the Fukushima Daiichi Nuclear Power Station Accident was hosted by the MOE of the Government of Japan in Tokyo from 17 – 21 April 2017. The series of meetings between the IAEA and the MOE is intended to provide a forum for continued discussions so that Japanese authorities can update IAEA staff and experts on the progress of the off-site area remediation process and collect input that might help to enhance these efforts. The collected information will also be shared with the international community so that lessons learned can be assimilated and incorporated in the preparedness of IAEA's Member States to deal with similar situations they may face.

From the IAEA, seven experts took part in the meeting, including four international experts and three IAEA internal staff members. From Japan, the meeting was attended by officials of the MOE, the Date City Government, and two professors from Tokyo University and Fukushima University.

All presentations will be available upon request to Dr. Sang Don Lee.

This meeting addressed the following five topics:

1. Environmental remediation at and around Fukushima after the TEPCO Fukushima Nuclear Accident

2. Lessons Learned from Environmental Remediation — What does the data collected in Date City tell us?
3. Lessons Learned from Environmental Remediation — How should effects of full-scale decontamination be evaluated?
4. Lessons Learned from Environmental Remediation — How could technologies including volume reduction (e.g., reuse and recycling) and lessons learned from environmental remediation in Fukushima be shared with international community?
5. Wrap-up and Preparation for Summary
6. Site Visit – Soil-recycling in Minami-Soma City and Incineration Facility at Ryozen in Date City

Expert meeting on April 18, 2017

The meeting started with an introduction and greeting from Mr. Monken-Fernandes and Mr. Teruyoshi Mayamizu, MOE's Councilor andMinister's Secretariat, respectively. The meeting proceeded with MOE's updates on the selected topics and was followed by the IAEA and experts' questions. Then, the topics were discussed with the all of the meeting attendees.

Dr. Sang Don Lee had a separate talk with Mr. Hayamizu to have a follow-up on the U.S.-Japan Bilateral updates. Dr. Lee updated the following items: the 2016 meeting between Ms. Jane Nishida, Acting Assistant Administrator of EPA's Office of International and Tribal Affairs and Mr. Kajihara, Vice Minister of MOE; Ms. Sara Watson from EPA Region 4 was awarded a Mensfield Grant and will detail in MOE on the topics of Fukushima remediation and other environmental topics starting August 2017; EPA's participation in the Radiation Management, Characterization, and Protective Action workshop under US-Japan Bilateral Emergency Management Working Group. Mr. Kiyohiko, Eino from MOE informed the group that MOE is invited to the conference call on May 22nd with US Department of Energy and Agency for Natural Resources and Energy (Japan) under the Decommissioning and Environmental Management Working Group.

Session 1: Environmental remediation after TEPCO Fukushima Nuclear Accident at and around Fukushima by Mr. Kazumi Yoshikawa from MOE.

Summary: MOE made significant progress with the remediation of off-site areas in the Special Decontamination Area (SDA) and the Intensive Contamination Survey Area (ICSA). A milestone achievement (March 2017) by MOE was the completion of full-scale decontamination in the SDA as planned. Because of this achievement, many municipalities in SDA have lifted the evacuation orders. However, the highest radiation dose area, "difficult to return area", has not been decontaminated. MOE will develop a plan to decontaminate this area. Most of the contaminated forest area has not been decontaminated. The decontaminated forest area was near the living area (e.g., 20 meters to the forest from the residential house). The ICSA's full-scale decontamination is in progress (80 municipalities are complete out of 92 municipalities) and is planned to complete its full-scale decontamination by fall of 2017. Currently, the MOE focuses its efforts on the return of residents to the SDA by closely working with the municipal governments and residents. The total number of evacuees as of March 2017 is approximately 72,000 (33,000 in Fukushima Prefecture and 39,000 from outside Fukushima).

MOE has made steady progress on the ISF construction and the soil waste transportation to the Interim Storage Facility (ISF). MOE is conducting a demonstration project to recycle/reuse the decontaminated soil to reduce the waste volume. MOE estimates approximately 22 million m^3 of waste from the decontamination work and approximately 20 million m^3 waste will have radioactivity less than 100,000 Bq per kg. Further, approximately half of this waste volume is expected to be less than 8,000 Bq per kg. The ISF is in construction to store and treat the decontamination waste before transport to the final disposal site. ISF construction has been delayed due to the difficulties in procuring the private land (currently 774 landowners contracted out of 2360) for construction. The final disposal site will be ready for operation 30 years from the ISF start.

MOE developed the Decontamination Report that compiled the Japanese Government's basic policies and framework for decontamination, the contractors' experience, and the effects of decontamination

technologies in March 2015. This report has helped to convey the Japanese Government's experiences and lessons learned both nationally and internationally. MOE continues its efforts to convey the full scale decontamination experiences to both national and international stakeholders by developing a series of decontamination reports.

Session 2: Lessons Learned from Environmental Remediation — What does the data collected in Date City tell us?

The first presentation in this session was given by Mr. Takahiro Hanzawa from Date City, Fukushima Prefecture. The presentation title was "Experiences of Decontamination Works in Date City".

Summary: Date City (not evacuated) government was the first municipality that started the decontamination activities right after the Nuclear Power Station (NPS) accident in April, 2011, while most of the municipalities waited for MOE's instructions for technical and financial support (decontamination started in 2012). By May, 2011, Date City conducted identification of high dose areas within the city, field testing for surface soil removal, dosimeter procurement, installation of air conditioners in the schools, and secured a decontamination budget. The early decisions on decontamination were possible because of advice from Dr. Shun-ichi Tanaka, the current Japan Nuclear Regulation Agency Commissioner and with the assumption that TEPCO would pay for the cost later.

Authorities in Date City divided the city into three areas: Area A with annual dose higher than 20 mSv, Area B with annual dose between 20 and 5 mSv, and Area C with annual dose less than 5 mSv. The decontamination project was implemented starting with schools from May, 2011, and completed in March, 2014. The presentation addressed the multiple lessons learned (extracted items):

- Following the completion of decontamination, the city officials recognized the importance of early response to gain the trust of the citizens.
- Decontamination strategy should consider cost vs. effectiveness and the 'as low as reasonably achievable' (ALARA) approach. There is a point when decontamination has no further effect on individual dose reduction.
- Clear explanation is required for the public as to why MOE has set the decontamination criterion as 0.23 mSv/h.
- The Date City government has doubts about MOE's plan that decontamination waste from local temporary storage sites will be transported to the ISF by 2020.
- Sharing of knowledge and experience among MOE and municipalities is important to improve the response and recovery. Sharing should have started as early as possible.
- It will be difficult for MOE to convince the public about the idea of waste reuse or recycling. Municipalities and residents have little trust in the national government.
- Ineffective (useless, no effect on individual dose reduction) decontamination has been conducted in other municipalities.

The second presentation in this session was given by Mr. Ryugo Hayano from the University of Tokyo. The presentation title was "Evaluation of data collected in Date City".

Summary: The first half of the presentation addressed the individual external dose monitoring results of all citizens of Date City for 5 to 51 months following the Fukushima NPS accident. The dosimeter results were compared to the ambient air dose monitoring results obtained by aircraft survey. The presentation addressed that the current MOE's ambient air monitoring reference value (0.23 μSv/h) was a very conservative estimation for the long term clean-up goal (1 mSv/y). The analyses showed that MOE's target exposure 0.23 μSv/h by air monitoring is not equal to the MOE's long term clean-up goal.[1] In Date City, the median ambient dose rate corresponding to 1 mSv/y was 0.8 μSv/h. These results are also in fair agreement with the result obtained by other research.

The second half presented the predicted results of lifetime additional effective dose and evaluating the effect of decontamination on individual dose from the Date City data. The lifetime additional external

[1] {[0.23 (measured air dose rate) - 0.04 (natural radiation dose rate) μSv/h] x [8h+16h x 0.4 (shielding factor due to staying indoors)]} x 365 days/1000 = 1 mSv per year.

dose in Area A of Date City was estimated to be 18 mSv (median). Effects of decontamination on the reduction of individual doses were not evident.

Expert meeting on April 19, 2017

Session 3: Lessons Learned from Environmental Remediation — How should effects of full –scale decontamination be evaluated?

This presentation in this session was given by Mr. Takuya Nomoto and Mr. Kotaro Hamana from MOE. The presentation title was “Effects of Decontamination in Special Decontamination Area”.

Summary: MOE implemented the decontamination in the SDA and completed the decontamination in March 201 excluding “Difficult-to-return Areas” based on the Decontamination Implementation Plan. The SDA decontamination work showed an air dose rate (1 m from the ground) reduction of 71% in residential areas, 68% in farmland, 44% in forest, and 61% on roads. The reduction (see the figure below) was calculated by comparing the monitoring results before (Dec. 2011 – Mar. 2016) and after decontamination (Sep. 2013 – Dec. 2016). The frequency distribution of air dose rates shows average reduction of 0.44 μSv/h.

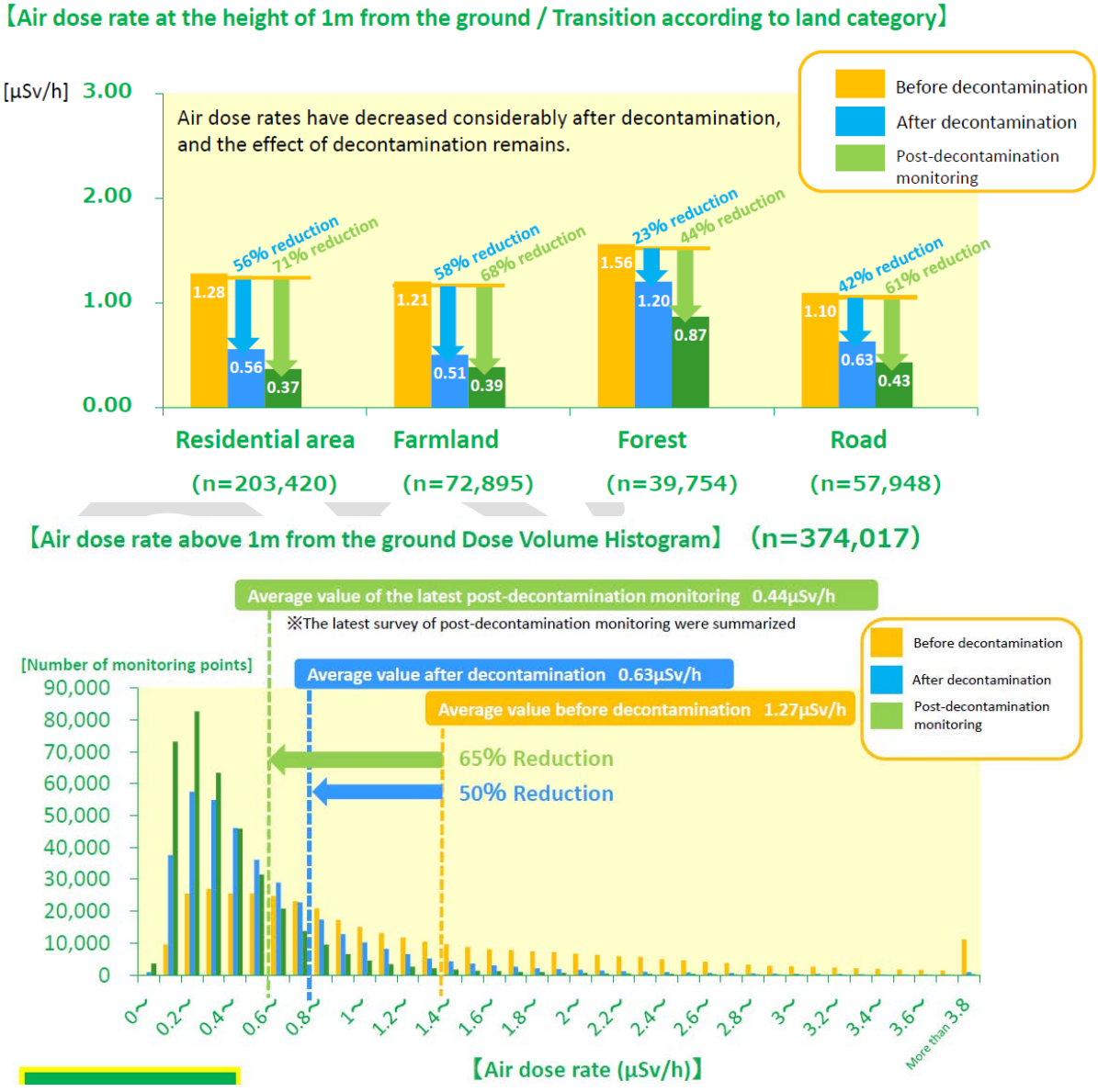


Figure. Effects of Decontamination (slides 8 and 9 from the presentation)

The resources used for the full-scale decontamination project are shown in the following table. The information has been restructured into the table format based on the presentation data and response to the questions.

Area	Cost	Duration (months)	Waste Volume (m^3)	Cumulative number of workers	Number of TSS*	Number of In-place Storage
SDA	~$12B	63	8,400,000	13,000,000	269	0
ICSA	~$12B	75	7,200,000	17,000,000	864	149,330

*TSS: Temporary Storage Site

Within ICSA, a large quantity of decontamination waste is still stored at in-place storage locations (e.g., residential backyards). The waste amounts at in-place storage locations are approximately 2 million m^3 within Fukushima prefecture and 0.5 million m^3 outside Fukushima prefecture.

Session 4: Lessons Learned from Environmental Remediation — How could technologies including volume reduction (e.g., reuse and recycling) and lessons learned from environmental remediation in Fukushima be shared with international community?

The first presentation in this session was given by Mr. Kencho Kawatsu from Fukushima University. The presentation title was "Verification Report of Decontamination in Tomioka Town".

Summary: The presenter has served as a chair in the Tomioka Town evacuated area (see the Photo1) Decontamination Investigation Committee (established in Sep. 2015). This committee analyzes and verifies the effectiveness of contamination reduction by examining information on the decontamination project that has been implemented by MOE. The committee is composed of current and former experts on radiation safety and remediation fields. This committee published a report based on their work in Oct. 2016. The major observations and required actions of the committee were:

- The average air dose rate at the height of 1 m above the ground changed from 1.89 µSv/h before decontamination to 0.62 µSv/h after decontamination. Decontamination work must be completed in the area that has not been decontaminated. A follow-up decontamination plan should be implemented to achieve the long term reduction goal (1 mSv/y).
- In multiple places, the dose rate is higher than the surrounding area (e.g., joints and cracks of the pavement, drain outlets of rainwater pipes, and places surrounded by mountain forests or planting zones). These areas required further decontamination.
- Farmland average air dose rate was reduced from 2 µSv/h to 0.47 µSv/h. Cesium soil radioactivity was below 5000 Bq/kg for all 70 sites of farmland in the town.
- In the forest area, the average air dose rate was confirmed to be reduced from 2.02 µSv/h to 1.62 µSv/h. Forest area needs to be decontaminated by removing surface soil up to five meters from the residential boundary into the forest area.
- Further reduction of the air dose rate in the vicinity of the boundary between the restricted area and the difficult-to-return areas is required.

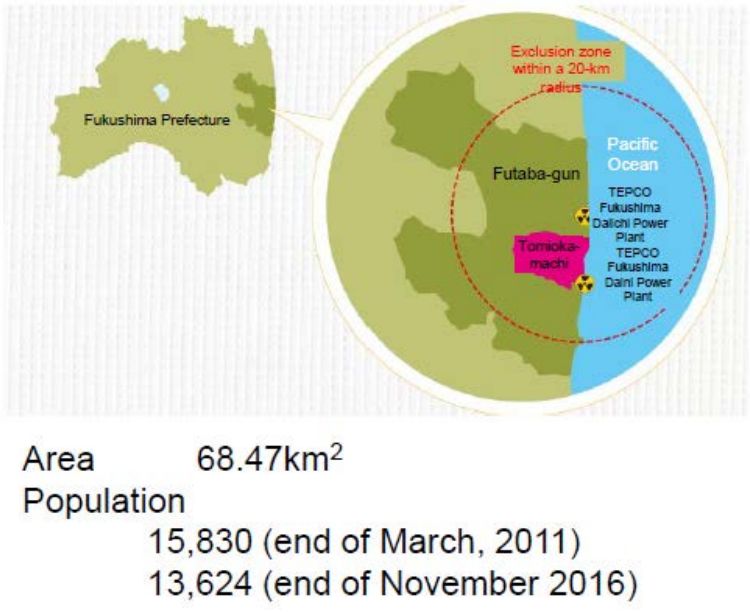


Photo 1. Tomioka Town

This committee's future investigation will include any

decontamination issues for the returnees, farmland and reservoirs, forests, difficult to return areas, and other issues.

The second presentation in this session was given by Mr. Kiyohiko Eino from MOE. The presentation title was “Strategy and Technology of Volume Reduction (i.e., reuse and recycling)”.

Summary: MOE is working toward the construction of ISF and planning the final disposal sites. According to the presenter, the current cost estimation for ISF construction and transportation of waste is approximately $16B for construction and $200B for final disposal cost.
MOE estimated the waste characteristics based on the existing waste stream data and has been considering multiple options to reduce the waste volume by recycling of decontaminated low level soil waste. The soil recycling methods considered (see the photo 2) are the base structure materials of coastal levees, seaside protection forests, freeway roads or cover materials for waste disposal sites which will not be artificially changed for a long time.

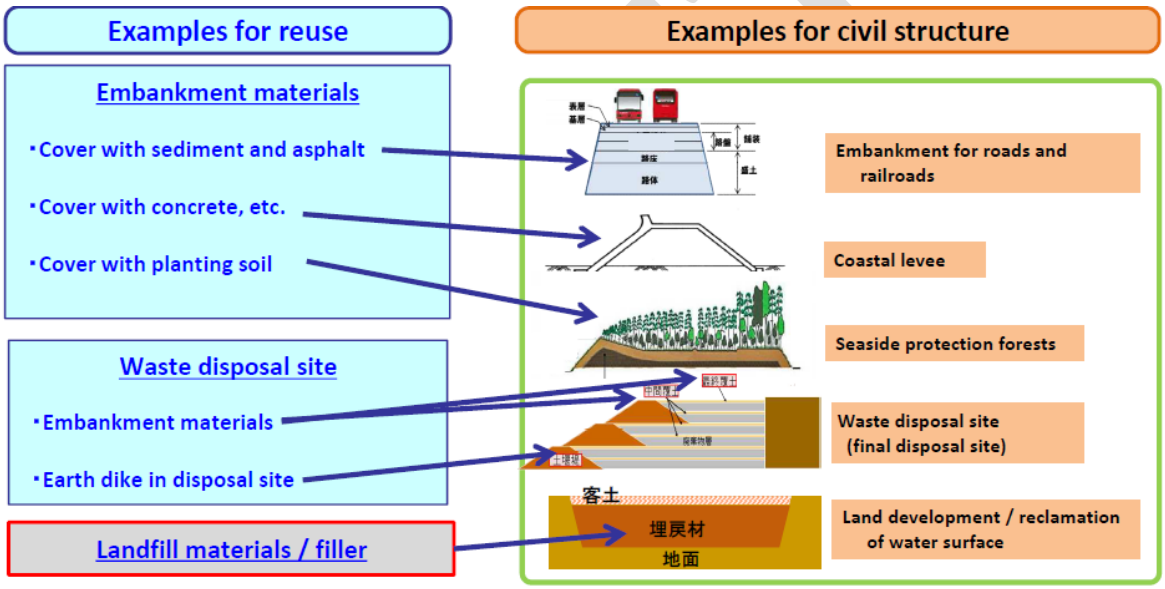


Photo 2. Soil Reuse Examples

To address this recycling approach, MOE is targeting the soil to be less than 8,000 Bq/kg. The construction using recycled soil should not exceed an additional exposure dose of 1 mSv/y (100 mrem/y) during the construction and 0.01 mSv/y (1 mrem/y) after the construction. The government shall conduct radioactive concentration monitoring, soil covering, scattering and leak prevention, record keeping, and managing landform changes. To assess the potential approaches, MOE will implement model projects, safety checks on radiation, verification for specific management methods, and fostering the understanding and trust of stakeholders. MOE estimated the additional exposure dose under normal use and also under disaster (e.g., fire, tsunami, flooding, etc.) response situations with the identified exposure pathways when the soil is recycled for the proposed construction. MOE then developed the radioactive cesium concentration level in the recycled material and the thickness of shielding to meet the exposure limits. See the table below for the MOE’s estimation.

The radioactive cesium conc. in the recycled materials

Use application		Shielding conditions	The radioactive cesium conc. in the recycled materials (Bq/kg)*1	The thickness of shielding necessary to reduce the additional exposure (cm)
Soil Structure (Embankment)		Covered with soil or asphalt(e.g. roads and railway banks)	≤ 6000	≥ 50cm
		Covered with concrete (e.g. Coastal levee)	≤ 6000	≥ 50cm *2
		Covered with plant (e.g. seaside protection forest)	≤ 5000	≥ 100cm *2
waste disposal areas	intermediate covers	Cover soil	≤ 8000	≥ 10cm
	Final covers		≤ 5000	≥ 30cm *2
	Embankment		≤ 8000	≥ 30cm
Landfill materials / filling materials		Covered with plant (e.g. seaside protection forest)	≤ 4000	≥ 40cm (grass plants) ≥ 100cm (arbor)*2

*1: The radioactive cesium conc. equivalent to 1 mSv/year(100 mrem/year), which was calculated by the evaluation of exposed dose for each use application, was rounded down to 1000 Bq/kg. The recyclable conc. was calculated based on the ratio of ^{134}Cs and ^{137}Cs on March 2016, would be change with the lapse of time, because ^{137}Cs which made a small contribution to the air dose rate, would be dominantly. Furthermore the additional exposure will decrease with time by decaying radioactive cesium in the recycled materials. 17

*2: The thickness of the soil (concrete) cover involves the required that of the soil (concrete) structure.

Currently, MOE is preparing a demonstration site in Minami-Soma City to examine the concrete handling methods for radiation in the recycling process and the proper and safe ways for ensuring quality as construction material since 2016. This project will use approximately 1,000 decontaminated soil bags from the Eastern Temporary Storage Site (estimated average radioactive concentration: approximately 2,000 Bq/kg). With necessary scattering and leakage prevention measures, embankment structures will be developed by using the recycled decontaminated soil and other materials and then the site will be monitored for a certain period (the embankment structures will be removed after completion of monitoring). By July 2017, MOE will have results for the embankment tests.

Expert meeting on April 20, 2017

Session 5: Wrap-up and Preparation for Summary

This session was organized to discuss the experts' observations and suggestions from the previous meetings. The discussion outcomes were presented to MOE, and the observations and suggestions were clarified with the MOE officials. Several key recommendations from the experts are addressed below. The discussion outcomes will be published in the IAEA mission report.

- MOE focuses its efforts to develop decontamination plans in the 'difficult to return area' and the forest area in collaboration with other ministries and municipalities to rebuild and repopulate the SDA.
- MOE develops plans in collaboration with other ministries and municipalities for the activities to further lower dose in the SDA following the full-scale decontamination to meet the long term clean-up goal (1 mSv per year). The plans will address the priorities of the remediation activities and milestones to prepare for repopulation and recovery.
- While developing the full-scale decontamination report, MOE reaches out to international stakeholders to identify their interests and to incorporate their input into the upcoming report.
- Encourage the Japanese Government to continue looking at changes in individual dose over time (more use of personal dosimeters).

- More consistency in units when presenting data (area vs. length for roads – MOE use ha while municipality uses km).
- Include error bars when comparing air dose rate data for effectiveness of decontamination in SDA.
- Present effectiveness data for decontamination in ICSA in the same format as for SDA by the end of 2017.
- IAEA to provide advice to MOE on criteria for a future post-decontamination monitoring strategy (timeframes and space).
- MOE to publish/make available information on type of waste produced by various techniques; % combustible; expected contamination level; useful for planning waste management and preparing size of storage facilities.
- Use of "down blending (mixing)" as part of soil recycling.
- Data treatment to adjust waste generation per unit area according to decontamination technique.
- Dedicated report on preparation for post-accident remediation - transition phase to recovery.
- Procedures for sampling and analysis of soil in the bags. Only dose rate available now. Classification of quantities per activity concentration intervals.

In the afternoon, the experts traveled to Fukushima City.

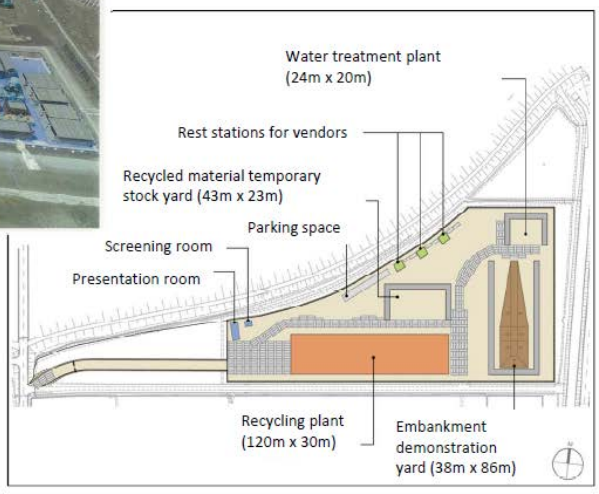
Expert meeting on April 21, 2017

Site Visit

Site for demonstrating soil recycling in Minami-Soma City

IAEA experts and MOE officials departed to the demonstration site in Minami-Soma City at 7:45 a.m. The bus arrived at the demonstration site at 10:30 a.m. The IAEA experts were briefed in the meeting room on the site design and the test procedures by Mr. Kiyohiko. The experts took the site tour and were briefed at numerous locations on the site activities. According to Ms. Yasui from Obayashi Corporation, approximately 30 different private contracting companies are participating in the demonstration project. The site design and the test procedures are shown in the following figures.

Current status and image for recycling demonstration project site



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Demonstration project image

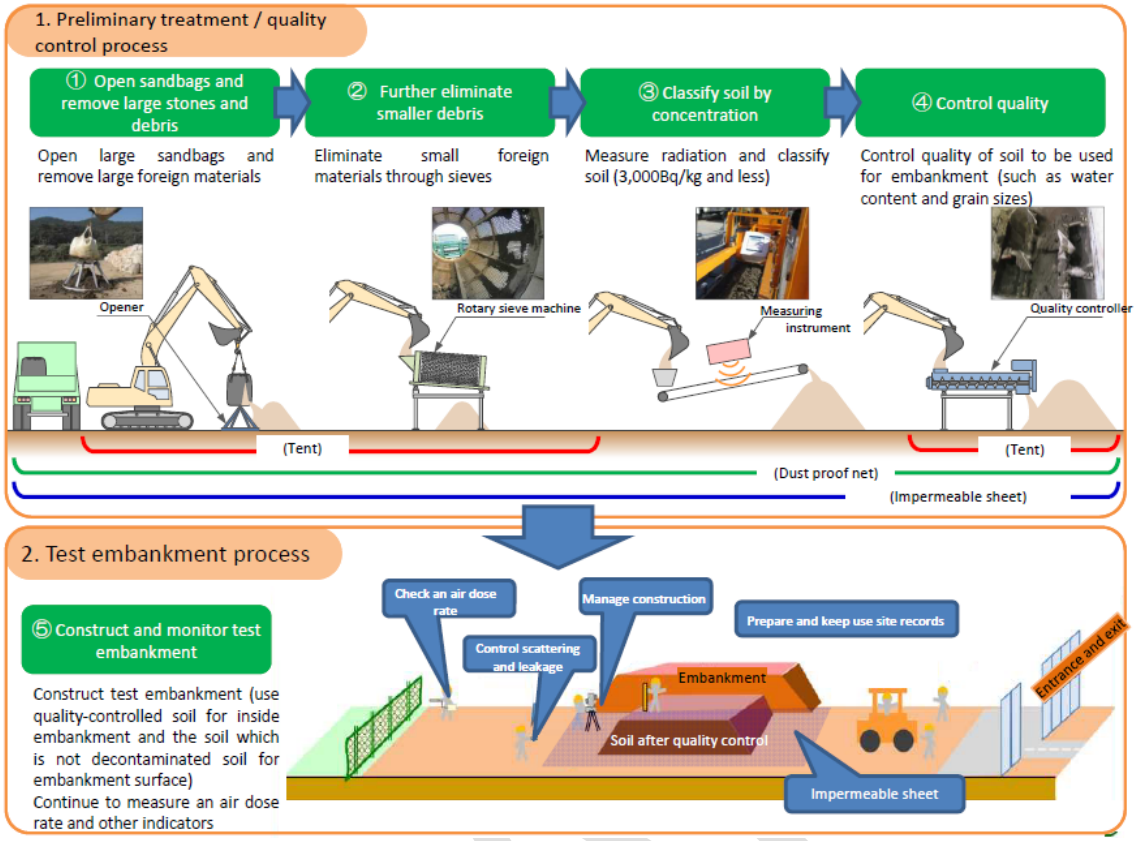

Photo 6. Truck Scanning Stage

Photo 3. Soil Recycler

A truck with up to 5 soil waste bags will enter the scanning stage (Photo 3) which is equipped with CANBERRA NaI detector to screen the waste bag radioactivity lower than 8000 Bq/kg. Waste bags higher than 8000 Bq/kg will return to the storage site. The waste bags then will be opened using a special opener (Photo 4). The piled waste soil will be sieved to remove any objects larger than 10 x 10 cm. The sieved soils will be further treated to remove water content and stabilized (or mixed) using a soil recycler (Photo 5, Hitachi SR2000G). The treated soil will be further sieved to separate the soil smaller than 2 mm in size. The sieved fine soils will be separated for the portion that is less than 3000 Bq/kg using the classification system shown in Photo 6. The classified waste soil will be used for demonstration tests. The first test will be conducted with the embankment, and the embankment tests will include radiation exposure and leachability for one year.

Photo 5. Soil Classification System

Photo 4. Bag Opener

The site visit ended at 1:00 p.m. and the IAEA experts departed to Date City.

Incineration Facility at Ryozen in Date City

Photo 7. Bag Filter System

The site visit started at 2:00 p.m. The Date City through JFE Engineering has been operating the incineration facility to reduce the waste volume for the combustible materials (~154,000 tons) since 2015. This facility will be in operation till 2019 and be decommissioned in 2020. The approximate volume reduction was 80%, and the daily throughput is ~130 tons. The incineration facility is equipped with a rotary kiln-stoker incinerator with two bag filtration systems (Photo 5). The approximate volume ratio of bottom and fly ash is 3:1. The Date City had to build the special incinerator because the combustible waste caused odor control issues (complaints from residents near TSS). However, the ISF was not ready to receive the waste yet in 2015. So the Date City government made a decision to build and operate the facility to remove the combustible waste. The site visit ended at 4:00 p.m.

The IAEA experts returned to Tokyo.

Expert meeting on April 22, 2017

Dr. Lee returned to U.S.

As of 17 April 2017

Schedule of 3rd IAEA-MOE Experts Meeting on Environmental Remediation

April 17 (Monday)

13:00 - 16:00	Preparatory meeting	IAEA and invited experts

Venue: Meeting Room No. 9 on the 1st Floor in the Ministry of the Environment
Address: No. 5 Godochosha, 1-2-2 Kasumigaseki, Chiyoda-ku, Tokyo 100-8975
Phone: +81 (0)3 5521-9269 (ex. 7513 Mr Kuroda)

DAY 1: April 18 (Tuesday)

Venue: Conference room No.3 on the 19th Floor in the Ministry of the Environment

9:30-9:35	Opening Remarks	Mr.Teruyoshi HAYAMIZU Ministry of the Environment, Japan
9:35- 9:40	Opening Remarks	Mr. Horst Monken-Fernandes IAEA

Session 1 **Environmental remediation after TEPCO Fukushima Nuclear Accident at and around Fukushima**

9:40-10:30	Overview of remediation project in Japan including completion of full-scale-decontamination	Mr Kazumi YOSHIKAWA Ministry of the Environment, Japan
10:30-12:00	Discussion	
12:00-13:00	Lunch	

Session 2 **Lesson Learned from Environmental Remediation 1— What the data collected in Date City tell us?-**

13:00-13:45	Experiences of Decontamination Works in Date City	Mr. Takahiro HANZAWA Date City, Fukushima Prefecture
13:45-14:30	Evaluation of data collected in Date City	Mr. Ryugo HAYANO The University of Tokyo
14:30-15:00	Q&A	

15:00-15:30 Coffee Break

15:30-17:00 Discussion

17:00-17:30 Wrap-up of Day 1

DAY 2: April 19 (Wednesday)

Venue: Conference room No.3 on the 19th Floor in the Ministry of the Environment

Session 3 **Lesson Learned from Environmental Remediation 2 — How should effects of full –scale decontamination be evaluated?**

9:30-10:15 Effects of Decontamination in Special Decontamination Area
Mr. Takuya NOMOTO
Ministry of the Environment, Japan

10:15-11:00 Effects of Decontamination in Intensive Contamination Survey Area
Mr. Kotaro HAMANA
Ministry of the Environment, Japan

11:00-12:00 Discussion

12:00-13:00 Lunch

Session 4 **Lesson Learned from Environmental Remediation 3 —How could technologies including volume reduction (e.g., reuse and recycling) and lessons learned from environmental remediation in Fukushima be shared with international community?**

13:00-13:45 Verification Report of Decontamination in Tomioka Town
Mr. Kencho KAWATSU
Fukushima University

13:45-14:30 Strategy and technology of Volume Reduction (e.g., reuse and recycling)
Mr.Kiyohiko EINO
Ministry of the Environment, Japan

14:30-15:00 Q&A

15:00-15:30 Coffee Break

15:30-17:00 Discussion

17:00-17:30 Wrap-up of Day 2

DAY 3: April 20 (Thursday)

Venue: Conference room No.3 on the 19th Floor in the Ministry of the Environment

Session 5	**Wrap-up —Preparation for Summary**	
9:30-10:30	IAEA Team's observation	Mr. Horst Monken-Fernandes IAEA
10:30-12:00	Discussion	
12:00-13:00	Lunch	
15:00	Depart from Tokyo Station (Yamabiko 143)	
16:32	Arrive at Fukushima Station	
19:00-21:00	Dinner	

Overnight in Fukushima City(Richmond Hotel Fukushima Ekimae)

DAY 4: April 21 (Friday)

7:45	Depart from the hotel
9:45-11:30	Site for demonstrating soil-recycling in Minami-Soma City
	[Lunch on the bus]
13:00-15:00	Incineration Facility at Ryozen in Date City
16:30	Arrive at Fukushima Station
17:01	Depart from Fukushima Station (Yamabiko 148)
18:36	Arrive at Tokyo Station

Break up

Consultancy Meeting (Experts' Visit) on
Environmental Remediation after Fukushima Daiichi Nuclear Power Station Accident (3rd)

Tokyo and Fukushima, Japan
17 to 21 April 2017 2016

Participant List (Ver.5, 17 April 2017)

IAEA

- Mr BERKOVSKYY, Volodymyr, Radiation Protection Institute, Ukraine
- Mr IZUMO, Akira, Waste Technology Section, International Atomic Energy Agency
- Mr LEE, Sang Don, Environmental Protection Agency, U.S.A.
- Mr MONKEN-FERNANDES, Horst, Waste Technology Section, International Atomic Energy Agency
- Ms NISBET, Anne, Public Health England, Centre for Radiation Chemicals and Environmental Hazards, U.K.
- Mr SAMANTA, Susanta Kumar, Independent Consultant, India
- Ms YANKOVICH, Tamara, Waste and Environmental Safety Section, International Atomic Energy Agency

Japan

- Mr HAYAMIZU, Teruyoshi, Councillor, Minister's Secretariat, Ministry of the Environment
- Mr YOSHIKAWA, Kazumi, Director, International Cooperation Office for Decontamination of Radioactive Materials, Environment management Bureau, Ministry of the Environment
- Mr UESAKO, Daisuke, Deputy Director, International Cooperation Office for Decontamination of Radioactive Materials, Environment management Bureau, Ministry of the Environment
- Mr.NOMOTO, Takuya, Deputy Director, Office of Director for Decontamination, Environmental Management Bureau, Ministry of the Environment
- Mr.HAMANA, Kotaro, Deputy Director, Office of Director for Decontamination, Environmental Management Bureau, Ministry of the Environment
- Mr EINO, Kiyohiko, Section Chief, International Cooperation Office for Decontamination of Radioactive Materials, Environment management Bureau, Ministry of the Environment
- Mr KURODA, Hiroyuki, Policy Researcher, International Cooperation Office for Decontamination of Radioactive Materials, Environment management Bureau, Ministry of the Environment

in the same division

Mr. Kaneko

- Mr.KAWATSU, Kencho, Project Professor, Faculty of Symbiotic Systems Science, Fukushima University
- Mr.HANZAWA, Takahiro, Associate Director General and Senior Policy Administrator of Radioactivity Technical Measures, Mayor Direct Control Department, Date City, Fukushima Pref.
- Mr.HAYANO, Ryugo, Professor, Dept. of Physics , The University of Tokyo